

**CLAIMS**

1        1. A system for storage in a storage network, the storage network including a file  
2 system server which manages access to storage according to a file system architecture using file  
3 system parameters, a plurality of clients of the file system server and one or more storage  
4 systems, comprising:

5              a plurality of communication interfaces, adapted for connection via communication  
6 media to respective ones of the plurality of clients and one or more storage systems; and  
7              processing resources, coupled with the plurality of communication interfaces, which  
8 manage communication via said plurality of communication interfaces according to a storage  
9 area network protocol which identifies units of storage according to storage area network  
10 parameters, and including logic to identify a particular message received from one of the  
11 plurality of clients under the storage area network protocol as a message relating to the file  
12 system architecture, to parse the particular message for file system parameters of an access  
13 according to the file system architecture, and to translate said file system parameters to an access  
14 using storage area network parameters.

1        2. The system of claim 1, wherein said file system parameters comprise file access  
2 block parameters.

1        3. The system of claim 1, wherein said storage area network protocol comprises a  
2 protocol compliant with a Standard Small Computer System Interface SCSI protocol.

1        4. The system of claim 1, wherein said storage area network protocol comprises a  
2 protocol compliant with a standard Fibre Channel Protocol FCP.

1        5. The system of claim 1, wherein said resources comprise memory and a computer  
2 program stored in the memory for mapping logical file identification parameters to physical  
3 storage block parameters.

1        6. The system of claim 1, wherein said particular message comprises a command  
2 according to the storage area network protocol directed to a file system virtual volume.

1        7.     The system of claim 1, wherein said particular message comprises a command  
2 according to the storage area network protocol directed to physical block outside an actual range  
3 of physical blocks accessible in the storage area network.

1        8.     The system of claim 1, wherein said particular message comprises a command  
2 compliant with a SCSI write command with at least a portion of said file system access  
3 parameters carried in a buffer associated with the command.

1        9.     The system of claim 1, wherein the resources further include logic for logical  
2 bounds checking for said particular message.

1        10.    The system of claim 1, wherein the resources further include logic for access  
2 control for said particular message.

1        11.    A method for access to storage resources by a plurality of clients in a storage  
2 network operating according to a storage area network protocol, comprising:  
3              providing a file system server in the storage area network, and in communication with  
4 the plurality of clients for file access management via a communication network, which manages  
5 access to storage according to a file system architecture;

6              installing an intermediate system in the storage area network between the plurality of  
7 clients and storage resources in the storage area network;

8              identifying a particular message received in the intermediate system from one of the  
9 plurality of clients under the storage area network protocol as a message relating to the file  
10 system;

11              parsing the particular message in the intermediate system for file system parameters of  
12 an access according to the file system architecture;

13              translating said file system parameters to an access using storage area network  
14 parameters; and

15              routing said access using the storage area network parameters through the intermediate  
16 device.

1           12.     The method of claim 11, wherein said file system parameters comprise file access  
2     block parameters.

1           13.     The method of claim 11, wherein said storage area network protocol comprises a  
2     protocol compliant with a Standard Small Computer System Interface SCSI protocol.

1           14.     The method of claim 11, wherein said storage area network protocol comprises a  
2     protocol compliant with a standard Fibre Channel Protocol FCP.

1           15.     The method of claim 11, including mapping logical file identification parameters  
2     of said file system parameters of the file system to physical storage block parameters of said  
3     storage area network parameters.

1           16.     The method of claim 11, wherein said particular message comprises a command  
2     according to the storage area network protocol directed to a file system virtual volume.

1           17.     The method of claim 11, wherein said particular message comprises a command  
2     according to the storage area network protocol directed to physical block outside an actual range  
3     of physical blocks accessible in the storage area network.

1           18.     The method of claim 11, wherein said particular message comprises a command  
2     compliant with a SCSI write command with at least a portion of said file system access  
3     parameters carried in a buffer associated with the command.

1           19.     The method of claim 11, including performing logical bounds checking for said  
2     particular message in said intermediate system.

1           20.     The method of claim 11, including performing access control for said particular  
2     message in said intermediate system.

1        21. An article of manufacture, comprising a machine readable storage medium, and a  
2 computer program stored therein, the computer program for operation in an intermediate device  
3 in a storage network, the storage network including a file system server which manages access to  
4 storage according to a file system architecture using file system parameters, a plurality of clients  
5 of the file system server and one or more storage systems, and comprising:

6              program instructions which upon execution in the intermediate device manage  
7 communication via said plurality of communication interfaces according to a storage area  
8 network protocol which identifies units of storage according to storage area network parameters,  
9 identifies a particular message received from one of the plurality of clients under the storage area  
10 network protocol as a message relating to the file system architecture, parses the particular  
11 message for file system parameters of an access according to the file system architecture, and  
12 translates said file system parameters to an access using storage area network parameters.

1        22. The article of claim 21, wherein said file system parameters comprise file access  
2 block parameters.

1        23. The article of claim 21, wherein said storage area network protocol comprises a  
2 protocol compliant with a Standard Small Computer System Interface SCSI protocol.

1        24. The article of claim 21, wherein said storage area network protocol comprises a  
2 protocol compliant with a standard Fibre Channel Protocol FCP.

1        25. The article of claim 21, wherein said instructions map logical file identification  
2 parameters to physical storage block parameters.

1        26. The article of claim 21, wherein said particular message comprises a command  
2 according to the storage area network protocol directed to a file system virtual volume.

1        27. The article of claim 21, wherein said particular message comprises a command  
2 according to the storage area network protocol directed to physical block outside an actual range  
3 of physical blocks accessible in the storage area network.

1        28. The article of claim 21, wherein said particular message comprises a command  
2 compliant with a SCSI write command with at least a portion of said file system access  
3 parameters carried in a buffer associated with the command.

1        29. The article of claim 21, wherein the instructions perform logical bounds checking  
2 for said particular message.

1        30. The article of claim 21, wherein the instructions perform access control for said  
2 particular message.